

SEQUENCE LISTING

<110> Brown, Arthur
Wible, Barbara
Yang, Qing

<120> Protein That Enhances Expression of Potassium Channels on Cell Surfaces and Nucleic Acids That Encode The Same

<130> 22884/04066

<150> 09/062,440

<151> 1998-04-17

<150> 09/712,495

<151> 2000-11-14

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<170> PatentIn version 3.0

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<213> Rattus norvegicus

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gta ggc tcc ccc agc ccc ctt gct tcc att cct ccc acc ctc ctg acc
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Val Gly Ser Pro Ser Pro Leu Ala Ser Ile Pro Pro Thr Leu Leu Thr

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cct ggc acc ttg ctg ggc cct aag cgt gag gtg gac atg cac cct cct
192

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro

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ctg ccc cag cct gtg cac cct gac gtc acc atg aaa cca ctg ccc ttc
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Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe

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tac gaa gtc tac gga gag ctc atc cgg ccg acc acc ctt gcg tcc acc
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Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

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tcc agt cag agg ttt gag gaa gcc cac ttt acc ttt gca ctc act ccc
336

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

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cag cag ctg cag cag att ctc aca tcc agg gag gtt ctg cca gga gcc
384

Gln Gln Leu Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115

120

125

aag tgc gat tat acc ata caa gtg cag ctc agg ttc tgt ctc tgt gag
432

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

130

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acc agc tgc ccc cag gag gac tat ttc ccc cct aac ctc ttt gtc aag
480

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
 145 150 155 160

gtt aat ggg aaa ctc tgc ccc ctg ccg ggt tac ctc cct cca acc aag
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 Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
 165 170 175

aat gga gct gag ccc aag agg cct agt cgt cca atc aac atc aca ccc
 576
 Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
 180 185 190

ctg gct cgt ctc tca gcc act gtt ccc aac acc ata gtg gtt aac tgg
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 Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
 195 200 205

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 Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
 210 215 220

cag ttg act gca ggg acc ctg cta caa aag ctc aga gcc aag ggt atc
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 Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
 225 230 235 240

cgg aat cca gac cat tcc cga gca ctg atc aag gag aaa ttg act gct
 768
 Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
 245 250 255

gac ccc gac agt gaa gtg gct act aca agt ctc cgg gtg tca ctc atg

816

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met

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tgc ccg ctg ggg aag atg cgc ctg act gtc cca tgc cgc gct ctc acc

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Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

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tgt gcc cac ctg cag agt ttc gat gct gcc ctt tat cta cag atg aat

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Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

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gag aaa aag cca aca tgg acg tgc cct gtg tgt gac aag aag gct ccc

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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

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Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser

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tgt tcg gat tgt gat gag atc cag ttc atg gaa gat gga tcc tgg tgt

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Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

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Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

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Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln

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Ser Glu Asn Lys Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser

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tca tca gat gag gaa gat ctg ccc ccc acc aag aag cac tgc cct gtt
1248

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Pro Val

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acc tcg gct gcc att cca gcc ctt cct gga agc aaa gga gcc ctg acc
1296

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Ala Leu Thr

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Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr

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ctg ggc agt gat ttc ctg tct agt ctc cca cta cat gag tac cca cct
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Leu Gly Ser Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro

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gcc ttc ccg ctg ggg gct gac atc caa ggt tta gat tta ttt tct ttc
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Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe

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ctt cag act gag agt cag cac tac agc cct tca gtt atc act tca cta
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Leu Gln Thr Glu Ser Gln His Tyr Ser Pro Ser Val Ile Thr Ser Leu

485

490

495

gat gag cag gac acc ctt ggc cac ttc ttc caa ttc cgg gga acc cct
1536

Asp Glu Gln Asp Thr Leu Gly His Phe Phe Gln Phe Arg Gly Thr Pro

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ccc cac ttc ctg ggc cca ctg gcc ccc aca ttg ggg agc tct cac cgc
1584

Pro His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Arg

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525

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1632

Ser Ala Thr Pro Ala Pro Ala Pro Gly Arg Val Ser Ser Ile Val Ala

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cct ggg agt tcc ttg agg gaa ggg cat gga gga ccc ctg cct tcc ggt
1680

Pro Gly Ser Ser Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly

545

550

555

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Pro Ser Leu Thr Gly Cys Arg Ser Asp Val Ile Ser Leu Asp

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35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
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Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
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Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
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Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
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Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
 245 250 255

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
 260 265 270

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr
 275 280 285

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
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Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser
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Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
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Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
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Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln

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Ser Glu Asn Lys Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser
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Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Pro Val
 405 410 415

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Ala Leu Thr
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Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr
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Leu Gly Ser Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro
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Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe
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Leu Gln Thr Glu Ser Gln His Tyr Ser Pro Ser Val Ile Thr Ser Leu
 485 490 495

Asp Glu Gln Asp Thr Leu Gly His Phe Phe Gln Phe Arg Gly Thr Pro
 500 505 510

Pro His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Arg
 515 520 525

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ggg ccc tct gat ctc tcc ctt ctc tct ttg ccc cct ggc acc tct cct
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 Gly Pro Ser Asp Leu Ser Leu Leu Ser Leu Pro Pro Gly Thr Ser Pro
 20 25 30

gta ggc tcc cct ggt cct cta gct ccc att ccc cca acg ctg ttg gcc
 144
 Val Gly Ser Pro Gly Pro Leu Ala Pro Ile Pro Pro Thr Leu Leu Ala
 35 40 45

cct ggc acc ctg ctg ggc ccc aag cgt gag gtg gac atg cac ccc cct
 192
 Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
 50 55 60

ctg ccc cag cct gtg cac cct gat gtc acc atg aaa cca ttg ccc ttc
 240
 Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
 65 70 75 80

tat gaa gtc tat ggg gag ctc atc cgg ccc acc acc ctt gca tcc act
288

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

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tct agc cag cgg ttt gag gaa gcg cac ttt acc ttt gcc ctc aca ccc
336

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

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cag caa gtg cag cag att ctt aca tcc aga gag gtt ctg cca gga gcc
384

Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115

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aaa tgt gat tat acc ata cag gtg cag cta agg ttc tgt ctc tgt gag
432

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

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acc agc tgc ccc cag gaa gat tat ttt ccc ccc aac ctc ttt gtc aag
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Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys

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gtt aat ggg aaa ctg tgc ccc ctg ccg ggt tac ctt ccc cca acc aag
528

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys

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aat ggg gcc gag ccc aag agg ccc agc cgc ccc atc aac atc aca ccc
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Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro

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ctg gct cga ctc tca gcc act gtt ccc aac acc att gtg gtc aat tgg
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Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp

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tca tct gag ttc gga cgg aat tac tcc ttg tct gtg tac ctg gtg agg
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Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala

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gac cct gac agt gag gtg gcc act aca agt ctc cgg gtg tca ctc atg
816

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met

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tgc ccg cta ggg aag atg cgc ctg act gtc cct tgt cgt gcc ctc acc
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Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

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Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

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gag aag aag cct aca tgg aca tgt cct gtg tgt gac aag aag gct ccc
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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

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tat gaa tct ctt atc att gat ggt tta ttt atg gag att ctt agt tcc
1008

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser

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tgt tca gat tgt gat gag atc caa ttc atg gaa gat gga tcc tgg tgc
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Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

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cca atg aaa ccc aag aag gag gca tct gag gtt tgc ccc ccg cca ggg
1104

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

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tat ggg ctg gat ggc ctc cag tac agc cca gtc cag ggg gga gat cca
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Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro

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tca gag aat aag aag aag gtc gaa gtt att gac ttg aca ata gaa agc
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Ser Glu Asn Lys Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser

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tca tca gat gag gag gat ctg ccc cct acc aag aag cac tgt tct gtc
1248

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Ser Val

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acc tca gct gcc atc ccg gcc cta cct gga agc aaa gga gtc ctg aca
1296

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Val Leu Thr

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tct ggc cac cag cca tcc tcg gtg cta agg agc cct gct atg ggc acg
1344

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr

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ttg ggt ggg gat ttc ctg tcc agt ctc cca cta cat gag tac cca cct
1392

Leu Gly Gly Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro

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gcc ttc cca ctg gga gcc gac atc caa ggt tta gat tta ttt tca ttt
1440

Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe

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ctt cag aca gag agt cag cac tat ggc ccc tct gtc atc acc tca cta
1488

Leu Gln Thr Glu Ser Gln His Tyr Gly Pro Ser Val Ile Thr Ser Leu

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495

gat gaa cag gat gcc ctt ggc cac ttc ttc cag tac cga ggg acc cct
1536

Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro

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505

510

tct cac ttt ctg ggc cca ctg gcc ccc acg ctg ggg agc tcc cac tgc
1584

Ser His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Cys

515

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agc gcc act ccg gcg ccc cct cct ggc cgt gtc agc agc att gtg gcc
1632

Ser Ala Thr Pro Ala Pro Pro Pro Gly Arg Val Ser Ser Ile Val Ala

530

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cct ggg ggg gcc ttg agg gag ggg cat gga gga ccc ctg ccc tca ggt
1680

Pro Gly Gly Ala Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly

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555

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Pro Ser Leu Thr Gly Cys Arg Ser Asp Ile Ile Ser Leu Asp

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35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
65 70 75 80

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
85 90 95

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
100 105 110

Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
115 120 125

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
130 135 140

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
145 150 155 160

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
165 170 175

Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
180 185 190

Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
195 200 205

Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
210 215 220

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
225 230 235 240

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
245 250 255

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
 260 265 270

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr
 275 280 285

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
 305 310 315 320

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser
 325 330 335

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
 340 345 350

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
 355 360 365

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro
 370 375 380

Ser Glu Asn Lys Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser
 385 390 395 400

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Ser Val
 405 410 415

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Val Leu Thr
 420 425 430

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr
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Leu Gly Gly Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro
 450 455 460

Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe
 465 470 475 480

Leu Gln Thr Glu Ser Gln His Tyr Gly Pro Ser Val Ile Thr Ser Leu
 485 490 495

Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro
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Ser His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Cys
 515 520 525

Ser Ala Thr Pro Ala Pro Pro Pro Gly Arg Val Ser Ser Ile Val Ala
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 35 40 45

Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp
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 35 40 45
 Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
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 Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
 65 70 75 80
 Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
 85 90 95
 Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
 100 105 110
 Gln Gln Xaa Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
 115 120 125
 Lys Leu Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
 130 135 140
 Thr Ser Leu Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
 145 150 155 160
 Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
 165 170 175
 Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
 180 185 190
 Lys Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
 195 200 205
 Ser Ser Glu Phe Gly Arg Asn Thr Ser Leu Ser Val Tyr Leu Val Arg
 210 215 220
 Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
 225 230 235 240
 Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Gly Lys Leu Thr Ala
 245 250 255
 Asp Pro Asp Ser Gly Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
 260 265 270
 Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

275 280 285
 Cys Ala His Leu Gln Ser Phe Ser Ala Ala Leu Tyr Leu Gln Met Asn
 290 295 300
 Glu Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Trp
 305 310 315 320
 Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Xaa Ser Cys
 325 330 335
 Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Thr Cys Pro
 340 345 350
 Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr
 355 360 365
 Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Xaa Gly Xaa Pro Ser
 370 375 380
 Glu Asn Lys Lys Xaa Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser
 385 390 395 400
 Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Xaa Val Thr
 405 410 415
 Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Xaa Leu Thr Ser
 420 425 430
 Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr Leu
 435 440 445
 Gly Xaa Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro Ala
 450 455 460
 Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu
 465 470 475 480
 Gln Thr Glu Ser Gln Tyr Xaa Pro Ser Val Ile Thr Ser Leu Asp Glu
 485 490 495
 Gln Asp Xaa Leu Gly His Phe Phe Gln Xaa Arg Phe Thr Pro Xaa His
 500 505 510
 Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Xaa Ser Ala
 515 520 525
 Thr Pro Ala Pro Xaa Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly

530

535

540

Xaa Xaa Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser
 545 550 555 560

Leu Thr Gly Cys Arg Ser Asp Ile Xaa Ser Leu Asp
 565 570

<210> 7

<211> 99

<212> PRT

<213> Homo sapiens

<400> 7

Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Tyr Glu Ser Leu
 1 5 10 15

Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser Cys Ser Asp Cys
 20 25 30

Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys Pro Met Lys Pro
 35 40 45

Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp
 50 55 60

Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln Ser Glu Asn Lys
 65 70 75 80

Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser Ser Asp Glu
 85 90 95

Glu Asp Leu

<210> 8

<211> 167

<212> PRT

<213> Homo sapiens

<400> 8

Pro Pro Thr Lys Lys His Cys Ser Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Val Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Gly Asp Phe Leu Ser
35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
65 70 75 80

Tyr Gly Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Ala Leu Gly
85 90 95

His Phe Phe Gln Tyr Arg Gly Thr Pro Ser His Phe Leu Gly Pro Leu
100 105 110

Ala Pro Thr Leu Gly Ser Ser His Cys Ser Ala Thr Pro Ala Pro Pro
115 120 125

Pro Gly Ala Val Ser Ser Ile Val Ala Pro Gly Gly Ala Leu Arg Glu
130 135 140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
145 150 155 160

Ser Asp Ile Ile Ser Leu Asp
165

<210> 9

<211> 167

<212> PRT

<213> Homo sapiens

<400> 9

Pro Pro Thr Lys Lys His Cys Pro Val Thr Ser Ala Ala Ile Pro Ala
1 5 10 15

Leu Pro Gly Ser Lys Gly Ala Leu Thr Ser Gly His Gln Pro Ser Ser
20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Ser Asp Phe Leu Ser
35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His

65		70		75		80									
Tyr	Ser	Pro	Ser	Val	Ile	Thr	Ser	Leu	Asp	Glu	Gln	Asp	Thr	Leu	Gly
				85					90					95	
His	Phe	Phe	Gln	Phe	Arg	Gly	Thr	Pro	Pro	His	Phe	Leu	Gly	Pro	Leu
			100					105					110		
Ala	Pro	Thr	Leu	Gly	Ser	Ser	His	Arg	Ser	Ala	Thr	Pro	Ala	Pro	Ala
		115					120					125			
Pro	Gly	Arg	Val	Ser	Ser	Ile	Val	Ala	Pro	Gly	Ser	Ser	Leu	Arg	Glu
	130					135					140				
Gly	His	Gly	Gly	Pro	Leu	Pro	Ser	Gly	Pro	Ser	Leu	Thr	Gly	Cys	Arg
145					150					155					160
Ser	Asp	Val	Ile	Ser	Leu	Asp									
				165											

<210> 10
 <211> 98
 <212> PRT
 <213> synthetic construct

 <220>
 <221> misc_feature
 <222> (25)..(25)
 <223> Xaa = serine or asparagine

 <220>
 <221> misc_feature
 <222> (61)..(61)
 <223> Xaa = glycine or glutamic acid

 <220>
 <221> misc_feature
 <222> (63)..(63)
 <223> Xaa = aspartic acid or asparagine

 <220>
 <221> misc_feature
 <222> (64)..(64)
 <223> Xaa = proline or glutamine

[illegible]

<213> Rattus norvegicus

<223> Xaa = serine or proline

<223> Xaa = valine or alanine

<223> Xaa = glycine or serine

 $\langle 220 \rangle$

<221> misc_feature
<222> (82)..(82)
<223> Xaa = glycine or serine

<220>
<221> misc_feature
<222> (94)..(94)
<223> Xaa = alanine or threonine

<220>
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<222> (101)..(101)
<223> Xaa = tyrosine or phenylalanine

<220>
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<222> (106)..(106)
<223> Xaa = serine or proline

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<222> (121)..(121)
<223> Xaa = cysteine or alanine

<220>
<221> misc_feature
<222> (128)..(128)
<223> Xaa = proline or alanine

<220>
<221> misc_feature
<222> (140)..(140)
<223> Xaa = glycine or serine

<220>
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<222> (141)..(141)
<223> Xaa = alanine or serine

<220>

<221> misc_feature
 <222> (164)..(164)
 <223> Xaa = isoleucine or valine

<400> 11

Pro Pro Thr Lys Lys His Cys Xaa Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Xaa Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Xaa Asp Phe Leu Ser
 35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
 50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
 65 70 75 80

Tyr Xaa Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Xaa Leu Gly
 85 90 95

His Phe Phe Gln Xaa Arg Gly Thr Pro Xaa His Phe Leu Gly Pro Leu
 100 105 110

Ala Pro Thr Leu Gly Ser Ser His Xaa Ser Ala Thr Pro Ala Pro Xaa
 115 120 125

Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly Xaa Xaa Leu Arg Glu
 130 135 140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
 145 150 155 160

Ser Asp Ile Xaa Ser Leu Asp
 165

<210> 12
 <211> 26
 <212> PRT
 <213> Rattus norvegicus

<400> 12

Ala Thr Gly Ala Ala Gly Ala Thr Cys Ala Ala Ala Gly Ala Gly Cys

1 5 10 15

Thr Thr Thr Ala Cys Cys Gly Ala Cys Gly
20 25

<210> 13

<211> 23

<212> PRT

<213> Rattus norvegicus

<400> 13

Thr Cys Ala Gly Thr Cys Cys Ala Gly Gly Gly Ala Ala Ala Thr Cys
1 5 10 15

Ala Thr Gly Ala Cys Cys Gly
20